DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

SMAJ5.0 THRU SMAJ170CA

TECHNICAL SPECIFICATIONS OF SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE RANGE - 5.0 to 170 Volts

PEAK PULSE POWER - 400 Watts

FEATURES

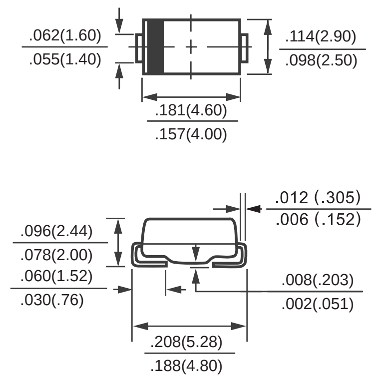
* Ideal for surface mounted applications
* Glass passivated junction
* 400 Watts Peak Pulse Power capability on 10/1000 µs waveform
* Excellent clamping capability
* Low zener impedance
* Fast response time

MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
* Polarity: Indicated by cathode band except Bidirectional types.
* Mounting position: Any
* Weight: 0.064 gram



SMA (DO-214AC)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load,
For capacitive load, derate current by 20%.

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix (e.g. SMAJ5.0C, SMAJ170CA)

Electrical characteristics apply in both directions

	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000 µs waveform (Note1)	P_{PPM}	Minimum 400	Watts
Steady State Power Dissipation (Note 2)	$P_{M(AV)}$	1.0	Watts
Peak Forward Surge Current, 8.3mS single half sine-wave superimposed on rated load (JEDEC Method) (Note 3)	I_{FSM}	40	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to + 175	°C

NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig.2.
2. Mounted on 0.2 X 0.2*(5.0 X 5.0mm) copper pad to each terminal.
3. 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

FIG. 1 - PEAK PULSE POWER RATING CURVE

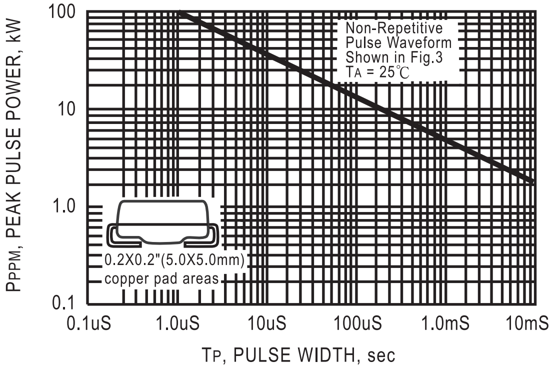


FIG. 2 - PULSE DERATING CURVE

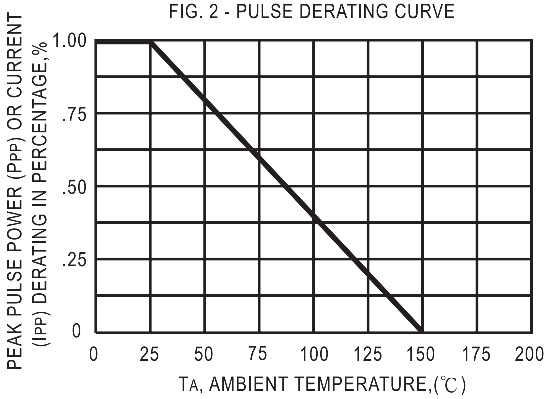


FIG. 3 - PULSE WAVEFORM

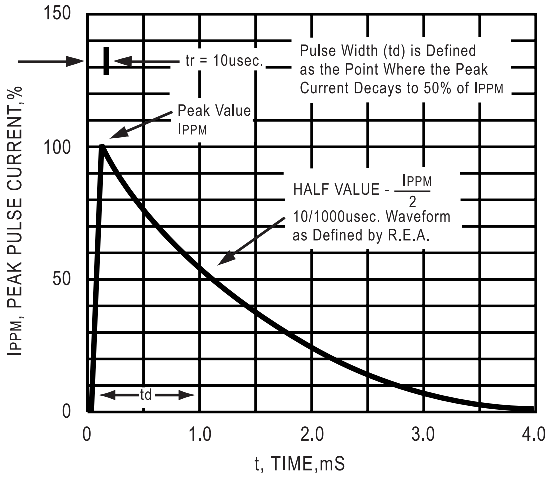


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

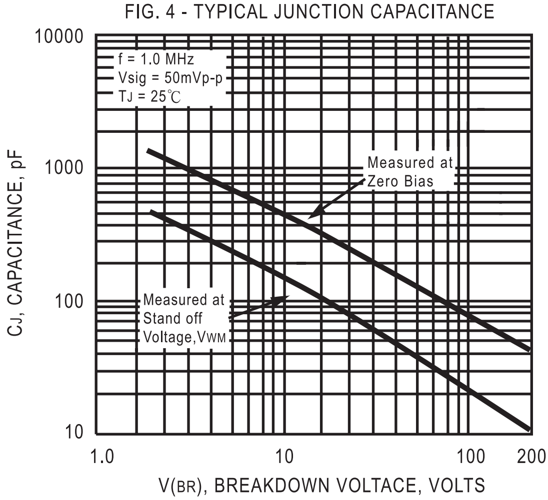
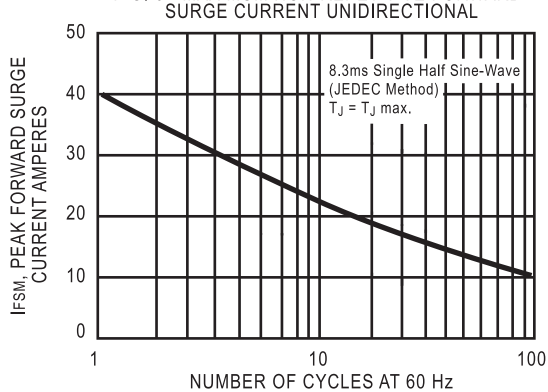


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT UNIDIRECTIONAL



TYPE	Breakdown Voltage VBR (Volts) MIN.	Breakdown Voltage VBR (Volts) MAX.	@IT (mA)	Reverse Stand off Voltage VWM (Volts)	Maximum Reverse Leakage at VWM ID(uA)	Maximum Peak Pulse Current IPPM (Am s)	Maximum Clamping Voltage at IPPM VC (Volts)
MAJ5.0	6.40	7.30	10	5.0	800.0	32.0	9.6
MAJ5.0A	6.40	7.00	10	5.0	800.0	34.0	9.2
MAJ6.0	6.67	8.15	10	6.0	800.0	27.6	11.4
MAJ6.0A	6.67	7.37	10	6.0	800.0	30.5	10.3
MAJ6.5	7.22	8.82	10	6.5	500.0	25.6	12.3
MAJ6.5A	7.22	7.98	10	6.5	500.0	28.0	11.2
MAJ7.0	7.78	9.51	10	7.0	200.0	23.6	13.3
MAJ7.0A	7.78	8.86	10	7.0	200.0	26.0	12.0
MAJ7.5	8.33	10.2	1.0	7.5	100.0	22.0	14.3
MAJ7.5A	8.33	9.21	1.0	7.5	100.0	24.4	12.9
MAJ8.0	8.89	10.9	1.0	8.0	50.0	21.0	15.0
MAJ8.0A	8.89	9.83	1.0	8.0	50.0	23.0	13.6
MAJ8.5	9.44	11.5	1.0	8.5	10.0	19.8	15.9
MAJ8.5A	9.44	10.4	1.0	8.5	10.0	21.8	14.4
MAJ9.0	10.0	12.2	1.0	9.0	5.0	18.6	16.9
MAJ9.0A	10.0	15.0	1.0	9.0	5.0	20.4	15.4
MAJ10	11.1	13.6	1.0	10.0	5.0	16.7	18.8
MAJ10A	11.1	12.3	1.0	10.0	5.0	18.5	17.0
MAJ11	12.2	14.9	1.0	11.0	5.0	15.6	20.1
MAJ11A	12.2	13.5	1.0	11.0	5.0	17.3	18.2
MAJ12	13.3	16.3	1.0	12.0	5.0	14.3	22.0
MAJ12A	13.3	14.7	1.0	12.0	5.0	15.8	19.9
MAJ13	14.4	17.6	1.0	13.0	5.0	13.0	23.8
MAJ13A	14.4	15.9	1.0	13.0	5.0	14.6	21.5
MAJ14	15.6	19.1	1.0	14.0	5.0	12.2	25.8
MAJ14A	15.6	17.2	1.0	14.0	5.0	13.5	23.2
MAJ15	16.7	20.4	1.0	15.0	5.0	11.7	26.9
MAJ15A	16.7	18.5	1.0	15.0	5.0	12.9	24.4
MAJ16	17.8	21.8	1.0	16.0	5.0	10.9	28.8
MAJ16A	17.8	19.7	1.0	16.0	5.0	12.0	26.0
MAJ17	18.9	23.1	1.0	17.0	5.0	10.3	30.5
MAJ17A	18.9	20.9	1.0	17.0	5.0	11.4	27.6
MAJ18	20.0	24.2	1.0	18.0	5.0	9.7	32.2
MAJ18A	20.0	22.1	1.0	18.0	5.0	10.7	29.2
MAJ20	22.2	27.1	1.0	20.0	5.0	8.7	35.8
MAJ20A	22.2	24.5	1.0	20.0	5.0	9.7	32.4
MAJ22	24.4	29.8	1.0	22.0	5.0	8.0	39.4
MAJ22A	24.4	26.9	1.0	22.0	5.0	8.8	35.5
MAJ24	26.7	32.6	1.0	24.0	5.0	7.3	43.0
MAJ24A	26.7	29.5	1.0	24.0	5.0	8.0	38.9
MAJ26	28.9	35.3	1.0	26.0	5.0	6.7	46.6
MAJ26A	28.9	31.9	1.0	26.0	5.0	7.4	42.1
MAJ28	31.1	38.0	1.0	28.0	5.0	6.3	50.1
MAJ28A	31.1	34.4	1.0	28.0	5.0	6.9	45.4
MAJ30	33.3	40.7	1.0	30.0	5.0	5.8	53.5
MAJ30A	33.3	36.8	1.0	30.0	5.0	6.5	48.4
MAJ33	36.7	44.9	1.0	33.0	5.0	5.3	59.0
MAJ33A	36.7	40.6	1.0	33.0	5.0	5.9	53.3
MAJ36	40.0	48.9	1.0	36.0	5.0	4.8	64.3
MAJ36A	40.0	44.2	1.0	36.0	5.0	5.4	58.1

TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T (mA)				
	MIN.	MAX.					
SMAJ40	44.4	54.3	1.0	40	5.0	4.4	71.4
SMAJ40A	44.4	49.1	1.0	40	5.0	4.8	64.5
SMAJ43	47.8	58.4	1.0	43	5.0	4.1	76.7
SMAJ43A	47.8	52.8	1.0	43	5.0	4.5	69.4
SMAJ45	50.0	61.1	1.0	45	5.0	3.9	80.3
SMAJ45A	50.0	55.3	1.0	45	5.0	4.3	72.7
SMAJ48	53.3	65.1	1.0	48	5.0	3.6	85.5
SMAJ48A	53.3	58.9	1.0	48	5.0	4.0	77.4
SMAJ51	56.7	69.3	1.0	51	5.0	3.4	91.1
SMAJ51A	56.7	62.7	1.0	51	5.0	3.8	82.4
SMAJ54	60.0	73.3	1.0	54	5.0	3.2	96.3
SMAJ54A	60.0	66.3	1.0	54	5.0	3.6	87.1
SMAJ58	64.4	78.7	1.0	58	5.0	3.0	103
SMAJ58A	64.4	71.2	1.0	58	5.0	3.3	93.6
SMAJ60	66.7	81.5	1.0	60	5.0	2.9	107
SMAJ60A	66.7	73.7	1.0	60	5.0	3.2	96.8
SMAJ64	71.1	86.9	1.0	64	5.0	2.7	114
SMAJ64A	71.1	78.6	1.0	64	5.0	3.0	103
SMAJ70	77.8	95.1	1.0	70	5.0	2.5	125
SMAJ70A	77.8	86.0	1.0	70	5.0	2.7	113
SMAJ75	83.3	102	1.0	75	5.0	2.3	134
SMAJ75A	83.3	92.1	1.0	75	5.0	2.6	121
SMAJ78	86.7	106	1.0	78	5.0	2.2	139
SMAJ78A	86.7	95.8	1.0	78	5.0	2.5	126
SMAJ85	94.4	115	1.0	85	5.0	2.0	151
SMAJ85A	94.4	104	1.0	85	5.0	2.2	137
SMAJ90	100	122	1.0	90	5.0	1.9	160
SMAJ90A	100	111	1.0	90	5.0	2.1	146
SMAJ100	110	136	1.0	100	5.0	1.7	179
SMAJ100A	110	123	1.0	100	5.0	1.9	162
SMAJ110	122	149	1.0	110	5.0	1.6	196
SMAJ110A	122	135	1.0	110	5.0	1.7	177
SMAJ120	133	163	1.0	120	5.0	1.4	214
SMAJ120A	133	147	1.0	120	5.0	1.6	193
SMAJ130	144	176	1.0	130	5.0	1.3	231
SMAJ130A	144	159	1.0	130	5.0	1.5	209
SMAJ150	167	204	1.0	150	5.0	1.1	268
SMAJ150A	167	185	1.0	150	5.0	1.3	243
SMAJ160	178	218	1.0	160	5.0	1.0	287
SMAJ160A	178	197	1.0	160	5.0	1.2	259
SMAJ170	189	231	1.0	170	5.0	1.0	304
SMAJ170A	189	209	1.0	170	5.0	1.1	275

NOTES : 1.V_{BR} measured after I_T applied for 300µs. I_T = Square Wave Pulse or equivalent.
2.For bidirectonal use C or CA suffixs for all types (ex. SMAJ5.0C, SMAJ170CA). electrical characteristics apply in both directions.
3.For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled.

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